

Curriculum Vitae

Professor Dr. Lars Röntzsch

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h-index: 24 [as of 2024-06-28]
Research
Interest Score: 989.6 [as of 2024-06-28]



Employment History

From 07/2022 Full Professor (W3), Chair of Thermal Energy Technology, Head of Hydrogen Research Center at Brandenburg University of Technology BTU in Cottbus, Germany
01/2013 – 06/2022 Head of department »Hydrogen Technology« at Fraunhofer IFAM
09/2007 – 12/2012 Group manager at Fraunhofer IFAM
05/2007 – 08/2007 Research staff at Dresden University of Technology, Institute of Materials Science
11/2003 – 04/2007 Research staff at Research Center Dresden-Rossendorf, Institute for Ion Beam Physics and Materials Research

Education

12/2007 Graduation: *Doctor rerum naturalium* (grade: summa cum laude)
09/2003 Graduation: *Diplom-Physiker* (grade: very good)
09/2000 – 05/2001 Studies of Physics, Philosophy & International Relations at Boston University, MA, USA
10/1997 – 09/2003 Studies of Physics at Dresden University of Technology
06/1996 *Abitur* (grade: 1.0)
09/1984 – 06/1996 School attendance

Awards

IQ Innovationspreis Mitteldeutschland (category *Energy · Environment · Solar*), Naumburg, Germany, 2015.
f-cell Award (category *Science*), Stuttgart, Germany, 2013.
E.ON International Research Initiative Award, 2010.
Fraunhofer Attract Grant, 2007.
E-MRS Young Scientist Award, Strasbourg, France, 2004.
IBMM 2004 Poster Award, Monterey, USA, 2004.
Scholarship of the *Kulturstiftung Dresden der Dresdner Bank*, 2000 – 2001.

Skills and Expertise

Computer C/C++, Epsilon Professional, ASPEN, Kinetic Monte Carlo, Basic, Latex, PovRay, RasMol, TRIM, TRIDYN, FlexPDE, COMSOL Multiphysics, Maple, Adobe CS, Corel Draw, Origin, MS Office
Experimental energy technology, hydrogen and fuel cells, renewable fuels, e-fuels, materials science, electrochemistry, thin film deposition, thermoanalysis, metallurgy, metal powder technology, sintering, ion beam technology, electron microscopy, diffraction and scattering, X-ray and neutron imaging
Languages German (native speaker), English (fluent), Spanish (basic), Russian (school level), Latin (school level), Ancient Greek (school level)
Hobbies tennis, ancient Egypt, architecture, glazing techniques, fruit breeding

List of Publications

- [74] S. Jana, P. Muthukumar, L. Röntzsch, *Transient analysis and performance prediction of metal hydride based thermal energy storage system with integrated cooling and heat recuperation*, submitted (2024).
- [73] P. Sharma, L. Röntzsch, V. K. Shahia, *Metal-organic frameworks-based polymer electrolyte membranes for aqueous redox flow batteries: State of the art review*, submitted (2024).
- [72] S. K. Sampangi, L. Röntzsch, *Electrolysis – Proton exchange membrane water electrolysis: State-of-the-art technique and systems*, in J. Reedijk (Ed.) *Reference Module in Chemistry, Molecular Sciences and Chemical Engineering*, ISBN 978-0-12-409547-2, Elsevier, 2024.
DOI: [10.1016/B978-0-323-96022-9.00237-1](https://doi.org/10.1016/B978-0-323-96022-9.00237-1)
- [71] A. Reimann, P. Kohlenbach, L. Röntzsch, *Development of a novel quasi-2D PEM Electrolyzer Model in Modelica*, Proceedings of the 15th International Modelica Conference, Aachen, 9-11 October 2023, Linköping University Electronic Press, 2023.
DOI: [10.3384/ecp20463](https://doi.org/10.3384/ecp20463)
- [70] Ö. Akay, A. Bashkatov, E. Coy, K. Eckert, K. E. Einarsrud, A. Friedrich, B. Kimmel, S. Loos, G. Mutschke, L. Röntzsch, M. D. Symes, X. Yang, K. Brinkert, *Electrolysis in Reduced Gravitational Environments: Current Research Perspectives and Future Applications*, npj Microgravity, vol. 8, article no. 56 (2022).
DOI: [10.1038/s41526-022-00239-y](https://doi.org/10.1038/s41526-022-00239-y)
- [69] N. Kardjilov, A. Hilger, H. Markötter, A. Griesche, R. Woracek, F. Heubner, L. Röntzsch, M. Grosse, I. Manke, J. Banhart, *Quantification of hydrogen in metals applying neutron imaging techniques*, Microscopy and Microanalysis, vol. 28 (Suppl. 1), pp. 1666 (2022).
DOI: [10.1017/S1431927622006638](https://doi.org/10.1017/S1431927622006638)
- [68] C. I. Bernäcker, T. Gimpel, A. Bomm, T. Rauscher, S. Mauermann, M. Li, E. G. Hübner, W. Schade, L. Röntzsch, *Short pulse laser structuring as a scalable process to produce electrodes for large alkaline water electrolyzers*, Journal of Power Sources, vol. 538, pp. 231572 (2022).
DOI: [10.1016/j.jpowsour.2022.231572](https://doi.org/10.1016/j.jpowsour.2022.231572)
- [67] S. Metz, T. Smolinka, C. I. Bernäcker, S. Loos, T. Rauscher, L. Röntzsch, M. Arnold, M. Jahn, M. Kusnezoff, G. Kolb, U.-P. Apfel, C. Doetsch, *Wasserstoffherzeugung durch Elektrolyse und weitere Verfahren*, in R. Neugebauer (Ed.): *Wasserstofftechnologien*, Berlin, Springer Vieweg, 2022, ISBN 9783662645116.
DOI: [10.1007/978-3-662-64939-8_9](https://doi.org/10.1007/978-3-662-64939-8_9)
- [66] F. Froughi, C. I. Bernäcker, L. Röntzsch, B. G. Pollet, *Understanding the Effects of Ultrasound (408 kHz) on the Hydrogen Evolution Reaction (HER) and the Oxygen Evolution Reaction (OER) on Raney-Ni in Alkaline Media*, Ultrasonics Sonochemistry, vol. 84, pp. 105979 (2022).
DOI: [10.1016/j.ultsonch.2022.105979](https://doi.org/10.1016/j.ultsonch.2022.105979)
- [65] C. I. Bernäcker, S. Loos, T. Rauscher, T. Weißgärber, B. Kieback, L. Röntzsch, *Pulvermetallurgie zur Herstellung von Elektroden für Power-to-X-Anwendungen*, pp. 147–157 in C. Broeckmann, H. Danninger, T. Weißgärber (Eds.): *Pulvermetallurgie – Nachhaltige Lösungen und neue Märkte*, Proceedings of the 39th Hagener Symposium, Heimdall-Verlag, Witten, 2021, ISBN 9783946537700.
- [64] M. Vogt, F. Heubner, T. Weißgärber, L. Röntzsch, *Nachhaltige Wasserstoff-on-demand-Lösung — Gesteuerte Hydrolysereaktion zur ubiquitären Wasserstoffversorgung*, HZwei (ISSN: 1862-393X), vol. 20 (4), pp. 28–30 (2020).
- [63] R. Baumann, T. Rauscher, C. I. Bernäcker, C. Zwahr, T. Weißgärber, L. Röntzsch, A. F. Lasagni, *Laser Structuring of Open Cell Metal Foams for Micro Scale Surface Enlargement*, Journal of Laser Micro/Nanoengineering, vol. 15, pp. 132–138 (2020).
DOI: [10.2961/jlmn.2020.02.2010](https://doi.org/10.2961/jlmn.2020.02.2010)
- [62] F. Heubner, T. Weißgärber, L. Röntzsch, *Solid Hydrogen Carriers als H₂-Speicher*, HZwei (ISSN: 1862-393X), vol. 20 (2), pp. 26–29 (2020).

- [61] H. A. Miller, K. Bouzek, J. Hnát, S. Loos, C. I. Bernäcker, T. Weißgärber, L. Röntzsch, J. Meier-Haack, *Green hydrogen from anion exchange membrane water electrolysis: A review of recent developments in critical materials and operating conditions*, Sustainable Energy & Fuels, vol. 4, pp. 2114–2133 (2020).
DOI: [10.1039/C9SE01240K](https://doi.org/10.1039/C9SE01240K)
- [60] L. Röntzsch, F. Heubner, S. Mauermann, T. Weißgärber, B. Kieback, *Fortschrittliche Metallhydrid-Werkstoffe für die Wasserstofftechnologie*, pp. 245–262 in H. Danninger, L. Sigl, M. Schneider (Eds.): *Pulvermetallurgie – Schlüsseltechnologie für innovative Systemlösungen*, Proceedings of the 38th Hagener Symposium, Heimdall-Verlag, Witten, 2019, ISBN 9783946537656.
- [59] T. Rauscher, C. I. Bernäcker, S. Loos, M. Vogt, B. Kieback, L. Röntzsch, *Spark-Plasma-Sintered Porous Electrodes for Efficient Oxygen Evolution in Alkaline Water Electrolysis*, Electrochimica Acta, vol. 317, pp. 128–138 (2019).
DOI: [10.1016/j.electacta.2019.05.102](https://doi.org/10.1016/j.electacta.2019.05.102)
- [58] M. Ďurovič, J. Hnát, C. I. Müller, T. Rauscher, L. Röntzsch, M. Paidar, K. Bouzek, *Nanocrystalline Fe₆₀Co₂₀Si₁₀B₁₀ as a cathode catalyst for alkaline water electrolysis: Impact of a surface activation*, Electrochimica Acta, vol. 306, pp. 688–697 (2019).
DOI: [10.1016/j.electacta.2019.03.107](https://doi.org/10.1016/j.electacta.2019.03.107)
- [57] C. I. Bernäcker, T. Rauscher, T. Büttner, B. Kieback, L. Röntzsch, *A powder metallurgy route to produce Raney-Ni electrodes for alkaline water electrolysis*, Journal of The Electrochemical Society, vol. 166, pp. F357–F363 (2019).
DOI: [10.1149/2.0851904jes](https://doi.org/10.1149/2.0851904jes)
- [56] T. Rauscher, C. I. Bernäcker, U. Mühle, B. Kieback, L. Röntzsch, *The effect of Fe as constituent in Ni-base alloys on the oxygen evolution reaction in alkaline solutions at high current densities*, International Journal of Hydrogen Energy, vol. 44, pp. 6392–6402 (2019).
DOI: [10.1016/j.ijhydene.2019.01.182](https://doi.org/10.1016/j.ijhydene.2019.01.182)
- [55] F. Heubner, A. Hilger, N. Kardjilov, I. Manke, B. Kieback, Ł. Gondek, J. Banhart, L. Röntzsch, *In operando stress measurement and neutron imaging of metal hydride composites for solid-state hydrogen storage*, Journal of Power Sources, vol. 397, pp. 262–270 (2018).
DOI: [10.1016/j.jpowsour.2018.06.093](https://doi.org/10.1016/j.jpowsour.2018.06.093)
- [54] A. Gabler, C. I. Müller, T. Rauscher, T. Gimpel, R. Hahn, M. Köhring, B. Kieback, L. Röntzsch, W. Schade, *Ultrashort-pulse laser structured titanium surfaces with sputter-coated platinum catalyst as hydrogen evolution electrodes for alkaline water electrolysis*, International Journal of Hydrogen Energy, vol. 43, pp. 7216–7226 (2018).
DOI: [10.1016/j.ijhydene.2018.02.130](https://doi.org/10.1016/j.ijhydene.2018.02.130)
- [53] T. Rauscher, C. I. Müller, A. Gabler, T. Gimpel, M. Köhring, B. Kieback, W. Schade, L. Röntzsch, *Femtosecond-laser structuring of Ni electrodes for highly active hydrogen evolution*, Electrochimica Acta, vol. 247, pp. 1130–1139 (2017).
DOI: [10.1016/j.electacta.2017.07.074](https://doi.org/10.1016/j.electacta.2017.07.074)
- [52] A. Gabler, C. I. Müller, T. Rauscher, M. Köhring, B. Kieback, L. Röntzsch, W. Schade, *Ultrashort pulse laser-structured nickel surfaces as hydrogen evolution electrodes for alkaline water electrolysis*, International Journal of Hydrogen Energy, vol. 42, pp. 10826–10833 (2017).
DOI: [10.1016/j.ijhydene.2018.02.130](https://doi.org/10.1016/j.ijhydene.2018.02.130)
- [51] F. Heubner, S. Mauermann, B. Kieback, L. Röntzsch, *Stress development of metal hydride composites for high density hydrogen storage applications*, Journal of Alloys and Compounds, vol. 705, pp. 176–182 (2017).
DOI: [10.1016/j.jallcom.2017.02.113](https://doi.org/10.1016/j.jallcom.2017.02.113)
- [50] M. Tegel, S. Schöne, B. Kieback, L. Röntzsch, *An efficient hydrolysis of MgH₂-based materials*, International Journal of Hydrogen Energy, vol. 42, pp. 2167–2176 (2017).
DOI: [10.1016/j.ijhydene.2016.09.084](https://doi.org/10.1016/j.ijhydene.2016.09.084)

- [49] I. Bürger, M. Dieterich, C. Pohlmann, L. Röntzsch, M. Linder, *Standardized hydrogen storage module with high utilization factor based on metal hydride-graphite composites*, Journal of Power Sources, vol. 342, pp. 970–979 (2017).
DOI: [10.1016/j.jpowsour.2016.12.108](https://doi.org/10.1016/j.jpowsour.2016.12.108)
- [48] C. Cremers, L. Röntzsch, *Brennstoffzellen als Range-Extender*, pp. 85–89, in R. Neugebauer (Ed.): *Ressourceneffizienz*, Springer Vieweg, Berlin, 2017, ISBN 9783662528884.
DOI: [10.1007/978-3-662-52889-1](https://doi.org/10.1007/978-3-662-52889-1)
- [47] A. Goldberg, C. Pohlmann, L. Röntzsch, C. Freitag, A. T. Tagne Saha, S. Ziesche, U. Partsch, *Highly efficient and long-term stable micro fuel cell system based on ceramic multilayer technology*, 6th Electronic System-Integration Technology Conference (ESTC), Grenoble, France, pp. 1–6 (2016).
DOI: [10.1109/estc.2016.7764494](https://doi.org/10.1109/estc.2016.7764494)
- [46] M. Tegel, L. Röntzsch, *PowerPaste für mobile und autarke Brennstoffzellen*, HZwei (ISSN: 1862-393X), vol. 16 (4), pp. 35–37 (2016).
- [45] T. Rauscher, C. I. Müller, A. Schmidt, B. Kieback, L. Röntzsch, *Ni-Mo-B alloys as cathode material for alkaline water electrolysis*, International Journal of Hydrogen Energy, vol. 41, pp. 2165–2176 (2016).
DOI: [10.1016/j.ijhydene.2015.12.132](https://doi.org/10.1016/j.ijhydene.2015.12.132)
- [44] C. I. Müller, K. Sellschopp, M. Tegel, T. Rauscher, B. Kieback, L. Röntzsch, *The activity of amorphous iron-based alloys as electrode materials for the hydrogen evolution reaction*, Journal of Power Sources, vol. 304, pp. 196–206 (2016).
DOI: [10.1016/j.jpowsour.2015.11.008](https://doi.org/10.1016/j.jpowsour.2015.11.008)
- [43] M. Dieterich, C. Pohlmann, I. Bürger, M. Linder, L. Röntzsch, *Long-term cycle stability of metal hydride-graphite composites*, International Journal of Hydrogen Energy, vol. 46, pp. 16375–16392 (2015).
DOI: [10.1016/j.ijhydene.2015.09.013](https://doi.org/10.1016/j.ijhydene.2015.09.013)
- [42] F. Heubner, C. Pohlmann, S. Mauermann, B. Kieback, L. Röntzsch, *Mechanical stresses originating from metal hydride composites during cyclic hydrogenation*, International Journal of Hydrogen Energy, vol. 40, pp. 10123–10130 (2015).
DOI: [10.1016/j.ijhydene.2015.06.053](https://doi.org/10.1016/j.ijhydene.2015.06.053)
- [41] K. Herbrig, C. Pohlmann, Ł. Gondek, H. Figiel, N. Kardjilov, A. Hilger, I. Manke, J. Banhart, B. Kieback, L. Röntzsch, *Investigations of the structural stability of metal hydride composites by in-situ neutron imaging*, Journal of Power Sources, vol. 293, pp. 109–118 (2015).
DOI: [10.1016/j.jpowsour.2015.05.039](https://doi.org/10.1016/j.jpowsour.2015.05.039)
- [40] C. Pohlmann, K. Herbrig, Ł. Gondek, N. Kardjilov, A. Hilger, H. Figiel, J. Banhart, B. Kieback, I. Manke, L. Röntzsch, *In operando visualization of hydride-graphite composites during cyclic hydrogenation by high-resolution neutron imaging*, Journal of Power Sources, vol. 277, pp. 360–369 (2015).
DOI: [10.1016/j.jpowsour.2014.12.011](https://doi.org/10.1016/j.jpowsour.2014.12.011)
- [39] J. Fu, M. Tegel, B. Kieback, L. Röntzsch, *Dehydrogenation properties of doped LiAlH₄ compacts for hydrogen generator applications*, International Journal of Hydrogen Energy, vol. 39, pp. 16362–16371 (2014).
DOI: [10.1016/j.ijhydene.2014.08.023](https://doi.org/10.1016/j.ijhydene.2014.08.023)
- [38] J. Gluch, S. Niese, L. Röntzsch, E. Zschech, *X-ray microscopy and tomography of hydrogen storage materials*, Microscopy and Microanalysis, vol. 20, suppl. 3, pp. 1568–1569 (2014).
DOI: [10.1017/s143192761400957x](https://doi.org/10.1017/s143192761400957x)
- [37] C. I. Müller, T. Rauscher, A. Schmidt, T. Schubert, T. Weißgärber, B. Kieback, L. Röntzsch, *Electrochemical investigations on amorphous Fe-base alloys for alkaline water electrolysis*, International Journal of Hydrogen Energy, vol. 39, pp. 8926–8937 (2014).
DOI: [10.1016/j.ijhydene.2014.03.151](https://doi.org/10.1016/j.ijhydene.2014.03.151)
- [36] C. Pohlmann, B. Kieback, L. Röntzsch, *Composite materials of melt-spun Mg₉₀Ni₁₀ and graphite: Microstructural changes during cyclic hydrogenation and the impact on gas and heat transport characteristics*, International Journal of Hydrogen Energy, vol. 39, pp. 8331–8339 (2014).
DOI: [10.1016/j.ijhydene.2014.03.163](https://doi.org/10.1016/j.ijhydene.2014.03.163)

- [35] J. Gluch, S. Niese, C. Jung, L. Röntzsch, E. Zschech, B. Kieback, *Electron and X-ray tomography of iron/iron oxide redox reactions for large-scale hydrogen storage*, *Microscopy and Microanalysis*, vol. 19, suppl. 2, pp. 578–579 (2013).
DOI: [10.1017/s1431927613004881](https://doi.org/10.1017/s1431927613004881)
- [34] K. Herbrig, L. Röntzsch, C. Pohlmann, T. Weißgärber, B. Kieback, *Hydrogen storage systems based on hydride-graphite composites: Computer simulation and experimental validation*, *International Journal of Hydrogen Energy*, vol. 38, pp. 7026–7036 (2013).
DOI: [10.1016/j.ijhydene.2013.03.104](https://doi.org/10.1016/j.ijhydene.2013.03.104)
- [33] C. Pohlmann, T. Hutsch, L. Röntzsch, T. Weißgärber, B. Kieback, *Novel approach for thermal diffusivity measurements in inert atmosphere using the flash-method*, *Journal of Thermal Analysis and Calorimetry*, vol. 114, pp. 629–634 (2013).
DOI: [10.1007/s10973-013-3048-9](https://doi.org/10.1007/s10973-013-3048-9)
- [32] C. Pohlmann, L. Röntzsch, F. Heubner, T. Weißgärber, B. Kieback, *Solid-state hydrogen storage in Hydrallloy-graphite composites*, *Journal of Power Sources*, vol. 231, pp. 97–105 (2013).
DOI: [10.1016/j.jpowsour.2012.12.044](https://doi.org/10.1016/j.jpowsour.2012.12.044)
- [31] C. Pohlmann, L. Röntzsch, T. Weißgärber, B. Kieback, *Heat and gas transport properties in pelletized hydride-graphite composites for hydrogen storage applications*, *International Journal of Hydrogen Energy*, vol. 38, pp. 1685–1691 (2013).
DOI: [10.1016/j.ijhydene.2012.09.159](https://doi.org/10.1016/j.ijhydene.2012.09.159)
- [30] A. Schmidt, T. Schubert, L. Röntzsch, T. Weißgärber, B. Kieback, *Rapidly solidified Fe-base alloys as electrode materials for water electrolysis*, *International Journal of Materials Research*, vol. 103, pp. 1155–1158 (2012).
DOI: [10.3139/146.110804](https://doi.org/10.3139/146.110804)
- [29] J. Fu, L. Röntzsch, T. Schmidt, M. Tegel, T. Weißgärber, B. Kieback, *Comparative study on the dehydrogenation properties of TiCl₄-doped LiAlH₄ using different doping techniques*, *International Journal of Hydrogen Energy*, vol. 37, pp. 13387–13392, (2012).
DOI: [10.1016/j.ijhydene.2012.06.009](https://doi.org/10.1016/j.ijhydene.2012.06.009)
- [28] M. E. Toimil-Molares, L. Röntzsch, W. Sigle, K. H. Heinig, C. Trautmann, R. Neumann, *Pipetting nanowires: In situ visualization of solid-state nanowire-to-nanoparticle transformation driven by surface diffusion-mediated capillarity*, *Advanced Functional Materials*, vol. 22, pp. 695–701 (2012).
DOI: [10.1002/adfm.201102260](https://doi.org/10.1002/adfm.201102260)
- [27] J. Fu, L. Röntzsch, T. Schmidt, T. Weißgärber, B. Kieback, *Improved dehydrogenation properties of lithium alanate (LiAlH₄) doped by low energy grinding*, *Journal of Alloys and Compounds*, vol. 525, pp. 73–77 (2012).
DOI: [10.1016/j.jallcom.2012.02.076](https://doi.org/10.1016/j.jallcom.2012.02.076)
- [26] E. D. Kouloukous, S. S. Makridis, L. Röntzsch, E. Pavlidou, A. Ioannidou, E. S. Kikkinides, A. K. Stubos, *Structural, microchemistry, and hydrogenation properties of TiMn_{0.4}Fe_{0.2}V_{0.4}, TiMn_{0.1}Fe_{0.2}V_{0.7} and Ti_{0.4}Zr_{0.6}Mn_{0.4}Fe_{0.2}V_{0.4} metal hydrides*, *Journal of Nanoscience and Nanotechnology*, vol. 12, pp. 4688–4696 (2012).
DOI: [10.1166/jnn.2012.4901](https://doi.org/10.1166/jnn.2012.4901)
- [25] C. Pohlmann, L. Röntzsch, J. J. Hu, T. Weißgärber, B. Kieback, M. Fichtner, *Tailored heat transfer characteristics of pelletized LiNH₂-MgH₂ and NaAlH₄ hydrogen storage materials*, *Journal of Power Sources*, vol. 205, pp. 173–179 (2012).
DOI: [10.1016/j.jpowsour.2012.01.064](https://doi.org/10.1016/j.jpowsour.2012.01.064)
- [24] T. Schmidt, L. Röntzsch, T. Weißgärber, B. Kieback, *Influence of transition metal dopants and temperature on the dehydrogenation and rehydrogenation kinetics of NaAlH₄*, *International Journal of Hydrogen Energy*, vol. 37, pp. 4194–4200 (2012).
DOI: [10.1016/j.ijhydene.2011.11.139](https://doi.org/10.1016/j.ijhydene.2011.11.139)
- [23] S. Kalinichenka, L. Röntzsch, T. Riedl, T. Weißgärber, B. Kieback, *Hydrogen storage properties and microstructure of melt-spun Mg₉₀Ni₈RE₂ (RE = Y, Nd, Gd)*, *International Journal of Hydrogen Energy*, vol. 36, pp. 10808–10815 (2011).
DOI: [10.1016/j.ijhydene.2011.05.147](https://doi.org/10.1016/j.ijhydene.2011.05.147)

- [22] S. Kalinichenka, L. Röntzsch, T. Riedl, T. Gemming, T. Weißgärber, B. Kieback, *Microstructure and hydrogen storage properties of melt-spun Mg-Cu-Ni-Y alloys*, International Journal of Hydrogen Energy, vol. 36, pp. 1592–1600 (2011).
DOI: [10.1016/j.ijhydene.2010.10.099](https://doi.org/10.1016/j.ijhydene.2010.10.099)
- [21] C. Pohlmann, L. Röntzsch, S. Kalinichenka, T. Hutsch, T. Weißgärber, B. Kieback, *Hydrogen storage properties of compacts of melt-spun Mg₉₀Ni₁₀ flakes and expanded natural graphite*, Journal of Alloys and Compounds, vol. 509, pp. S625–S628 (2011).
DOI: [10.1016/j.jallcom.2010.11.060](https://doi.org/10.1016/j.jallcom.2010.11.060)
- [20] S. Kalinichenka, L. Röntzsch, C. Baetz, T. Weißgärber, B. Kieback, *Hydrogen desorption properties of melt-spun and hydrogenated Mg-based alloys using in situ synchrotron X-ray diffraction and TGA*, Journal of Alloys and Compounds, vol. 509, pp. S629–S632 (2011).
DOI: [10.1016/j.jallcom.2010.10.067](https://doi.org/10.1016/j.jallcom.2010.10.067)
- [19] T. Schmidt, L. Röntzsch, T. Weißgärber, B. Kieback, *Reversible hydrogen storage in Ti-Zr-codoped NaAlH₄ under realistic operation conditions: Part 2*, Journal of Alloys and Compounds, vol. 509, pp. S740–S742 (2011).
DOI: [10.1016/j.jallcom.2010.10.183](https://doi.org/10.1016/j.jallcom.2010.10.183)
- [18] L. Röntzsch, T. Schmidt, S. Kalinichenka, B. Kieback, *Hydrogen storage in melt-spun nanocrystalline Mg-Ni-Y alloys*, pp. 159–163 in D. Stolten, T. Grube (Eds.): *18th World Hydrogen Energy Conference 2010 - WHEC 2010*, Parallel Sessions Book 4: Storage Systems / Policy Perspectives, Initiatives and Cooperations, Forschungszentrum Jülich, 2010, ISBN 9783893366545.
- [17] C. Pohlmann, L. Röntzsch, S. Kalinichenka, T. Hutsch, B. Kieback, *Magnesium alloy-graphite composites with tailored heat conduction properties for hydrogen storage applications*, International Journal of Hydrogen Energy, vol. 35, pp. 12829–12836 (2010).
DOI: [10.1016/j.ijhydene.2010.08.104](https://doi.org/10.1016/j.ijhydene.2010.08.104)
- [16] T. Schmidt, L. Röntzsch, *Reversible hydrogen storage in Ti-Zr-codoped NaAlH₄ under realistic operation conditions*, Journal of Alloys and Compounds, vol. 496, pp. L38–L40 (2010).
DOI: [10.1016/j.jallcom.2010.02.162](https://doi.org/10.1016/j.jallcom.2010.02.162)
- [15] S. Kalinichenka, L. Röntzsch, C. Baetz, B. Kieback, *Hydrogen desorption kinetics of melt-spun and hydrogenated Mg₉₀Ni₁₀ and Mg₈₀Ni₁₀Y₁₀ using in situ synchrotron, X-ray diffraction and thermogravimetry*, Journal of Alloys and Compounds, vol. 496, pp. 608–613 (2010).
DOI: [10.1016/j.jallcom.2010.02.128](https://doi.org/10.1016/j.jallcom.2010.02.128)
- [14] L. Röntzsch, T. Schmidt, S. Kalinichenka, C. Pohlmann, A. Schmidt, T. Weißgärber, B. Kieback, *Wasserstoffspeicherung in nanoskaligen Feststoffen*, pp. 41–56 in H. Kolaska (Ed.): *Energie- und Ressourceneffizienz durch Pulvermetallurgie*, Proceedings of the 28th Hagener Symposium, Heimdall-Verlag, Witten, 2009, ISBN 978939935391.
- [13] L. Röntzsch, S. Kalinichenka, B. Kieback, *Microstructure and de-/hydrogenation behavior of melt-spun Mg-Ni-Y alloys as hydrogen storage materials*, pp. 1085–1090 in K.U. Kainer (Ed.): *Magnesium. Proceedings of the 8th International Conference on Magnesium Alloys and their Applications*, Wiley-VCH, Weinheim, 2009, ISBN 9783527327324.
- [12] T. Schmidt, L. Röntzsch, S. Kalinichenka, J. Meinert, B. Kieback, *Entwicklung reversibler Wasserstoffspeichersysteme auf Basis nanostrukturierter Metallhydride*, Chemie Ingenieur Technik, vol. 81, p. 1136 (2009).
DOI: [10.1002/cite.200950012](https://doi.org/10.1002/cite.200950012)
- [11] S. Kalinichenka, L. Röntzsch, B. Kieback, *Structural and hydrogen storage properties of melt-spun Mg-Ni-Y alloys*, International Journal of Hydrogen Energy, vol. 34, pp. 7749–7755 (2009).
DOI: [10.1016/j.ijhydene.2009.07.053](https://doi.org/10.1016/j.ijhydene.2009.07.053)
- [10] L. Röntzsch, *Shape evolution of nanostructures by thermal and ion beam processing*, Wissenschaftlich-technische Berichte des Forschungszentrums Dresden-Rossendorf, FZR-488, 2008, 176 pages.
Online: [urn:nbn:de:bsz:14-ds-1199973604526-36322](https://nbn-resolving.org/urn:nbn:de:bsz:14-ds-1199973604526-36322)
- [9] L. Röntzsch, K. H. Heinig, J. A. Schuller, M. L. Brongersma, *Thin film patterning by surface-plasmon-induced thermocapillarity*, Applied Physics Letters, vol. 90, pp. 044105/1–3 (2007).
DOI: [10.1063/1.2432282](https://doi.org/10.1063/1.2432282)

- [8] B. Schmidt, K. H. Heinig, L. Röntzsch, K. H. Stegemann, *Nanocluster memories by ion beam synthesis of Si in SiO₂*, *Materials Science-Poland*, vol. 25, pp. 1213–1222 (2007).
Online: materialsscience.pwr.wroc.pl/bi/vol25no4/articles/ms_29_2007_155schm.pdf
- [7] B. Schmidt, A. Mücklich, L. Röntzsch, K. H. Heinig, *How do high energy heavy ions shape Ge nanoparticles embedded in SiO₂?*, *Nuclear Instruments and Methods in Physics Research B*, vol. 257, pp. 30–32 (2007).
DOI: [10.1016/j.nimb.2006.12.152](https://doi.org/10.1016/j.nimb.2006.12.152)
- [6] L. Röntzsch, K. H. Heinig, B. Schmidt, A. Mücklich, *Experimental evidence of Si nanocluster δ -layer formation in the vicinity of ion-irradiated SiO₂-Si interfaces*, *Nuclear Instruments and Methods in Physics Research B*, vol. 242, pp. 149–151 (2006).
DOI: [10.1016/j.nimb.2005.08.012](https://doi.org/10.1016/j.nimb.2005.08.012)
- [5] B. Schmidt, K. H. Heinig, L. Röntzsch, T. Müller, K. H. Stegemann, E. Votintseva, *Ion irradiation through SiO₂/Si interfaces: Non-conventional fabrication of Si nanocrystals for memory applications*, *Nuclear Instruments and Methods in Physics Research B*, vol. 242, pp. 146–148 (2006).
DOI: [10.1016/j.nimb.2005.08.011](https://doi.org/10.1016/j.nimb.2005.08.011)
- [4] L. Röntzsch, K. H. Heinig, B. Schmidt, A. Mücklich, W. Möller, J. Thomas, T. Gemming, *Direct evidence of self-aligned Si nanocrystals formed by ion irradiation of Si/SiO₂ interfaces*, *physica status solidi A*, vol. 202, pp. R170–R172 (2005).
DOI: [10.1002/pssa.200521399](https://doi.org/10.1002/pssa.200521399)
- [3] L. Röntzsch, K. H. Heinig, *Reaction pathways of ion beam synthesis and stability of monocrystalline nanowires*, pp. 165–169 in P. Pödör et al. (Eds.): *Proceedings Int. Workshop on Semicond. Nanocrystals*, Vol. 1, Budapest, Hungary, 2005, ISBN 9637371184.
- [2] L. Röntzsch, K. H. Heinig, B. Schmidt, *Experimental evidence of Si nanocluster δ -layer formation in buried and thin SiO₂ films induced by ion irradiation*, *Materials Science in Semiconductor Processing*, vol. 7, pp. 357–362 (2004).
DOI: [10.1016/j.mssp.2004.09.098](https://doi.org/10.1016/j.mssp.2004.09.098)
- [1] L. Röntzsch, *Self-organization of nanocluster delta-layers at ion-beam-mixed Si-SiO₂ interfaces*, *Wissenschaftlich-technische Berichte des Forschungszentrums Rossendorf, FZR-392*, 2003, 91 pages.
Online: [urn:nbn:de:bsz:d120-qucosa-29001](http://nbn-resolving.org/urn:nbn:de:bsz:d120-qucosa-29001)

List of Patents

- [13] C. I. Bernäcker, O. Kunze, S. Loos, T. Rauscher, L. Röntzsch, S. Scheitz; PROCESS FOR FORMING A CATALYTICALLY ACTIVE LAYER ON A SURFACE OF A MEMBRANE WHICH IS PART OF AN ELECTRODE-MEMBRANE UNIT OF AN ELECTROCHEMICAL CELL; DE102020208003 (A1).
- [12] C. I. Bernäcker, L. Röntzsch; DEVICE FOR ELECTROCHEMICAL SEPARATION OF OXYGEN AND/OR FOR INCREASING THE OXYGEN PARTIAL PRESSURE IN A GAS MIXTURE; DE102020207427 (A1).
- [11] C. I. Bernäcker, L. Röntzsch; SYSTEM FOR THE PROVISION AND DELIVERY OF AT LEAST ALMOST PURE OXYGEN; DE102020205213 (A1).
- [10] F. Heubner, L. Röntzsch; HYDROGEN STORAGE CONTAINER; DE102020204214 (B3), EP3889103 (A1).
- [9] A. Goldberg, S. Ziesche, M. Vogt, L. Röntzsch; FLEXIBLE SYSTEM FOR GENERATING ELECTRICAL ENERGY, A DEVICE FOR OUTPUTTING ELECTRICAL ENERGY, A METHOD FOR PRODUCING THE FLEXIBLE SYSTEM AND USES THEREOF; DE102020205970 (B3).
- [8] C. I. Bernäcker, L. Röntzsch, S. Loos, T. Rauscher, S. Mauermann, J. Scholz, T. Büttner, L. Hofmann, M. Ostafin; METHOD FOR PRODUCING A METAL SUBSTRATE CATALYTIC CONVERTER UNIT AND THE USE THEREOF; DE102020204747 (A1).
- [7] L. Röntzsch, B. Kieback, M. Dieterich, I. Bürger, C. Pohlmann; STORAGE ELEMENT FOR GASES; DE102015213061 (A1), EP3118511 (A1).
- [6] C. Pohlmann, L. Röntzsch, B. Kieback, F. Heubner; METHOD AND MEASURING DEVICE FOR DETERMINING THE AMOUNT OF A GAS CONTAINED IN A STORAGE DEVICE ON A POROUS STORAGE MATERIAL; DE102015100584 (B3), EP3045910 (B1).
- [5] M. Tegel, L. Röntzsch, B. Kieback; COMPOSITE MATERIAL FOR HYDROLYTICALLY GENERATING HYDROGEN, DEVICE FOR HYDROLYTICALLY GENERATING HYDROGEN, METHOD FOR GENERATING HYDROGEN, DEVICE FOR GENERATING ELECTRIC ENERGY, AND POSSIBLE APPLICATIONS; US2017107101 (A1), DE102014211422 (A1), EP3154900 (B1), US10239753 (BB), WO2015189247 (A1).
- [4] M. Tegel, L. Röntzsch, B. Kieback; DEVICE AND METHOD FOR THE HYDROLYTIC PRODUCTION OF HYDROGEN, DEVICE FOR PRODUCING ELECTRICAL ENERGY AND POSSIBILITIES FOR USAGE; EP3008012 (B1), DE102013211106 (A1), WO2014198948 (A1).
- [3] M. Tegel, L. Röntzsch, T. Weißgärber, B. Kieback; METHOD FOR RECLAIMING NEODYMIUM OXIDE FROM A STARTING MIXTURE; DE102012017418 (A1), DE102012017418 (B4), WO2014033004 (A1).
- [2] L. Röntzsch, T. Schmidt; RELEASING HYDROGEN FROM METAL HYDRIDE, COMPRISES HYDROLYZING BY ADDING WATER, AND ADDITIONALLY ADDING ACIDIC ADDITIVE, WHICH EXHIBITS BUFFERING EFFECT FOR METAL HYDRIDE, AND IS DISSOLVED IN WATER OR IS PRESENT IN SOLID OR SUSPENDED FORM; DE102011115073 (A1).
- [1] W. Hungerbach, B. Kieback, J. Kunze, L. Röntzsch, G. Stephani; REVERSIBLE HYDROGEN STORAGE ELEMENT AND METHOD FOR THE FILLING AND EMPTYING THEREOF; DE102007038779 (A1), DE102007038779 (B4), WO2009018821 (A2), WO2009018821 (A3).